Claims

1. A method of compensating for differences between an applied DC link voltage and a predetermined DC link voltage in an electrical machine having a rotor, at least one phase winding and a controller arranged to energise the phase winding in dependence on the angular position of the rotor, the method comprising the steps of measuring the applied DC link voltage and applying a predetermined correction to the angular position of energisation of the phase winding in dependence on the value of the applied DC link voltage.

2. A method as claimed in claim 1, in which the controller includes a memory arranged to store a predetermined relationship between the applied DC link voltage and the correction to the angular position.

3. A method as claimed in claim 1 or 2, in which the applied DC link voltage is measured periodically.

4. A method as claimed in any preceding claim, in which the applied DC link voltage is measured when the machine is started.

5. A method as claimed in any preceding claim, further comprising the step of measuring the applied DC link voltage when the machine is connected to a power supply but before the machine is switched on, the method further comprising the step of applying a predetermined correction to the angular position of energisation of the phase winding on starting the machine, in dependence on the value of the measured DC link voltage.

6. A method as claimed in any preceding claim, further comprising the step of deriving an average value for the applied DC link voltage at the or each measurement.

7. A method as claimed in claim 6, in which the step of deriving the average value includes applying a filter to the applied DC link voltage.

8. A method of controlling an electrical machine, including the method of compensating for differences between the applied DC link voltage and a predetermined DC link voltage as claimed in any preceding claim.

9. A controller for an electrical machine comprising a rotor and at least one phase winding, the controller being arranged to energise the phase winding in dependence on the angular position of the rotor, the controller further being arranged to apply, on application of a DC link voltage, a predetermined correction to the angular position of energisation of the phase winding in dependence on the value of the applied DC link voltage.

10. A controller as claimed in claim 9, further comprising a memory arranged to store a predetermined relationship between the applied DC link voltage and the correction to the angular position.

11. A controller machine as claimed in claim 10, in which the memory further includes a predetermined advance angle map representing the energisation of the phase winding with respect to the angular position of the rotor over a range of rotor speeds

12. A controller as claimed claim 11, in which the memory further comprises an angle correction factor to be applied to a predetermined portion of the predetermined advance angle map, which correction factor relates to the difference between the measured input power and a predetermined power.

13. An electrical machine incorporating a controller as claimed in claim any one of claims 9 to 12.

14. An electrical machine as claimed in claim 13, in the form of a switched reluctance motor.

15. A cleaning appliance incorporating an electrical machine as claimed in claim 13 or 14.

16. A method of compensating for differences between an applied DC link voltage and a predetermined DC link voltage in an electrical machine having a rotor, at least one phase winding and a controller arranged to energise the phase winding in dependence on the angular position of the rotor, substantially as hereinbefore described, with reference to, or as illustrated in, the accompanying drawings.

17. A controller for an electrical machine, an electrical machine, a switched reluctance motor or a cleaning appliance, substantially as hereinbefore described, with reference to, or as illustrated in, the accompanying drawings.